APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/718,374	11/24/2000	Yiqing S. Liang	258/160	3681

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EXAMINER
AZARIAN, SEYED H

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 05/14/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ___3___ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____ .

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-42* _____ is/are pending in the application.

   4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-42* _____ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on ___*Nov 24, 2000*___ is/are a) ☒ accepted or b) ☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

   If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a) ☐ All b) ☐ Some* c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   *See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

   a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). *4,5,6*

4) ☐ Interview Summary (PTO-413) Paper No(s). _____

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other:

DETAILED ACTION

Claim Rejections - 35 U.S.C. § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

2.   Claims 1-5, 10-24, 26-29 and 31-33, are rejected under 35 U.S.C. 102(e) as being

anticipated by Maki et al (U.S.6,072,903).

Regarding claim 1, Maki et al disclose a system, comprising a computer configured to

determine a position and shape of an object of interest from video images and characterize

activity of said object of interest based on analysis of changes in said position and said shape

over time, (see column 15, 49-57, line refer to detecting information about position, shape and

posture of object).

Regarding claim 2, Maki et al disclose the system of claim 1, further comprising: a video

camera coupled to said computer for providing said video images, (see column 23, line 64 throw

column 24, line 7, tracking of motion picture; by use of television camera).

Regarding claim 3, Maki et al disclose the system of claim 2, further comprising: a video

digitization unit couple to said video camera and said computer for converting said video images

provided by said video camera from analog to digital format, (see above claims and column 8, line 46-51, refer to using a digital filter).

Regarding claim 4, Maki et al disclose the system of claim 3, further comprising: a storage/retrieval unit coupled to said video digitization unit, said video camera, and said computer, for storing said video images and standard object video images, (see column 25, line 32-37, refer to storage section).

Regarding claim 5, Maki et al disclose the system of claim 1, wherein said computer includes an object identification and segregation module receiving said video images, (see column 29, line 23-28, refer to receiving three-dimensional position information).

Regarding claim 13, Maki et al disclose the system of claim 1, wherein said object is a mouse, (see column 2, line 20-26 refer to three dimensional mouse).

Regarding claim 19, Maki et al disclose the method of claim 18, wherein said step of generating a background image includes the step of determining variation in intensity of pixels within said individual frames to identify a region where said foreground object is located, (see column 19, line 44-52, corresponding to pixel and intensity of the light).

Regarding claim 26, Maki et al disclose the method of claim 24, wherein said step of identifying and classifying changes to said foreground object uses contour-based shape information selected from the group consisting of b-spline representation, convex hull representation, and corner point, (see column 9, line 14-23, refer to connected feature points, such as outer corner of the eye).

Regarding claim 27, Maki et al disclose the method of claim 24, wherein said step of

identifying and classifying changes to said foreground object includes identifying a set of model

postures and their description information, said set of model postures including horizontal

posture, vertical posture, eating posture, or sleeping posture, (see column 25, line 6-11, refer to

posture information).

With regard to claims 10-18, 20-24, 28-29 and 31-33, the arguments analogous to those

presented for claims above are applicable.

Claim Rejections - 35 U.S.C. § 103

3.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

4.   Claims 6-9, 25 and 30, are rejected under 35 U.S.C. 103(a) as being unpatentable over

Maki et al (U.S.6,072,903) in view of Crabtree et al (U.S.6,263,088).

Regarding claim 6, Maki et al disclose the system of claim 5, wherein said object

identification and segregation module operates using a background subtraction algorithm in

which a plurality of said video images are grouped into a set, a standard deviation map of the set

of video images is created, a bounding box where a variation is greater than a predetermined

threshold is remove from said set of video images, and the set of images less said bounding boxes is averaged to produce a background image, (see column 25, line 45-52, refer to specific threshold value and extracting of connected feature point).

However Maki et al does not explicitly state " standard deviation " . On the other hand Crabtree et al teaches (see column 17, line 61-64, the standard deviation value for the region cluster density, "the number of pixels in a region cluster area in the oriented bounding box" are provided).

Therefore it would have been obvious to a person of ordinary skill in the art at time the invention was made, to modify Maki et al invention according to the teachings of Crabtree et al because it is method to measure dispersion of a group of measurements relative to the mean(average) of that group or defined as the square root of the expected value of the square of the difference between a random variable.

Regarding claim 8, Maki et al disclose the system of claim 7, wherein said-computer further includes an object tracking module for tracking said object from one frame of said video images to another frame, and an object shape and location change classifier for classifying the activity of said object, coupled to each other, said object identification and segregation module, and said behavior identification module, (see column 25, line 1-11, refer to tracking the motion of object, according to the position of feature points extracted at each frame).

Regarding claim 9, Maki et al disclose the system of claim 8, wherein said computer further includes a standard object behavior storage module that stores information about known

behavior of a predetermined standard object for comparing the activity of said object, said

standard object behavior storage module being coupled to said behavior identification module,

and a standard object classifier module coupled to said standard object behavior module, (see

column 27, line 20-31, refer to images comparison).

With regard to claims 7, 25 and 30, the arguments analogous to those presented for

claims above are applicable.

5.   Claims 34-42, are rejected under 35 U.S.C. 103(a) as being unpatentable over Maki et al

(U.S.6,072,903) in view of Crabtree et al (U.S.6,263,088) and Smith et al (U.S.5,870,138).

Regarding claim 34, Maki et al disclose the method of claim 33, wherein said temporal

analysis is a time-series analysis such as Hidden Markov Model (HMMs), (see above claims).

However Maki et al and Crabtree et al does not explicitly state " Hidden Markov Model "

. On the other hand Smith et al teaches (column 17, line 41-43, the device can be implemented

as a Hidden Markov Model and has two phases of operation, namely training and recall).

Therefore it would have been obvious to a person of ordinary skill in the art at time the

invention was made, to modify Maki et al and Crabtree et al invention according to the teachings

of Smith et al because it is device to map the input data (images) from the camera to outputs

which represents the probability of the input images belonging to a specified set of expressions.

With regard to claims 35-42, the arguments analogous to those presented for claims

above are applicable.

Other prior art cited

6.   U.S. patent 5,596,994 to Bro is cited for automated and interactive behavioral and medical guidance.

Contact Information

7.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (703) 306-5907.

The examiner can normally be reached on Monday through Thursday 6:00 a.m. to 6:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor,Leo Boudreau, can be reached at (703)305-4706.

Any response to this action should be mailed to:

Assistant Commissioner for Patents

Washington, D.C. 20231

or faxed to:

(703) 306-0377, ("draft" or "informal"communications should be clearly labeled to expedite delivery to examiner)

Hand delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the T.C. customer service office whose telephone number is (703) 306-0377.
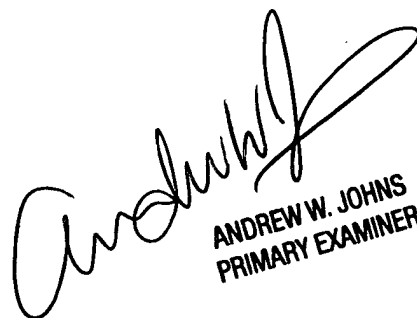
Seyed Azarian

Patent Examiner

Group Art Unit 2621

May. 13, 2002

ANDREW W. JOHNS
PRIMARY EXAMINER